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ABSTRACT

This report focuses on assessing the quality of undergraduate education. A framework for thinking about the topic is provided, followed by a discussion of the ways in which the educational context is typically organized and student achievement is typically measured, with suggestions for new indicators and measures. The significance of contexts and processes is noted, with 10 suggested measures of process and context variables. Suggestions are also made for improving the content of alumni surveys. How these quality-related issues are viewed in relation to concerns for accountability, standards, evaluation, and assessment is briefly discussed, with renewed emphasis on how assessment can best contribute to learning and improvement. An adequate assessment of educational and instructional quality requires a battery of measures, a variety of observations, and the recognition of multiple aims. In addition, the role of students in evaluations needs to be given greater attention; by keeping time logs, diaries, and writing an autobiography, students can directly express and document both the process and results of learning. Two tables and 20 figures are included. (SLD)

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Quality, Content, and Context in the Assessment of Student Learning and Development in College

by C. Robert Pace

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CSE Report No. 256

Center for Research on Evaluation,
Standards, and Student Testing
UCLA

1986

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ABSTRACT

This report focuses on assessing the quality of undergraduate education. A framework for thinking about the topic is provided, followed by a discussion of the ways in which educational context is typically organized and student achievement is typically measured, with suggestions for new indicators and measures. Of educational and instructional quality, a systematic and comprehensive inventory of student activities is currently available. Then the significance of contexts and processes is noted, with ten suggested measures of process and context variables. Moving beyond the college years, suggestions are made for enriching the content of alumni surveys. The paper concludes with a discussion of quality issues in relation to concerns for accountability, standards, evaluation and assessment, with emphasis on how assessment can best contribute to learning and improvement.

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INTRODUCTION

Quality and excellence are such widely used words in all the recent reports about the condition of higher education and the importance of assessment that there is little merit in reaffirming the obvious virtues intended by those words. Everyone wants good quality at good colleges and good evidence to prove the goodness.

There is, nevertheless, some merit in sorting out what various advocates of quality mean by quality. My own view is that it is useful to distinguish between institutional quality, educational quality, and instructional quality. It is also useful to be clear about "quality for whom?" Is it for undergraduate learning and development? Is it for graduate and professional school? Is it for adult education? Is it for contribution to research and inventions? No one indicator of quality is sufficient or relevant for all these aspects of higher education. Moreover, it is also important to view quality in relation to purposes. How well is one achieving what one intends to achieve? There is no single goal or purpose that is equally important or equally emphasized by all colleges and universities.

It is true that all colleges and universities teach undergraduates, but it does not follow that the quality of undergraduate learning is an equally appropriate criterion for judging <u>institutional</u> quality at all types of institutions. It is also true all colleges seek and have faculty members who are judged to be scholars. But it does not follow from this that all colleges should be rated by the scholarly and research eminence of their faculty members. At some colleges faculty members are

expected to make significant published contributions to research, and their expenditure of time is arranged to enhance that outcome; but at other colleges faculty members are expected to devote a large share of their time to stimulating the intellectual and personality development of every undergraduate student.

The facts of institutional diversity in American higher education require diversity in the indicators for judging quality. For example, responses of faculty members rating the importance of twenty goal areas (from the Institutional Goals Inventory, published by ETS) at various institutions in California showed research and advanced training as the two most important goals at the University of California but as the two least important goals at private four-year colleges. Also, the goal area described as individual personal development ranked third from the top at the private four-year colleges, but fourteenth at the University of California campuses.

The large differences in aims and activities at big research-oriented universities compared to small liberal arts colleges suggest the scope of relevant indicators needed to judge institutional quality. With respect to the assessment of instruction and the educational experience of undergraduates, however, the relevant indicators of quality are similar at large universities and at small colleges. The differences are in the context, the environment, the conditions, the priorities that may be related to the quality of undergraduate student learning and development.

The following lists illustrate how the scope of inquiry and indicators of interest change as one moves from the assesment of instructional quality, to educational quality, and to institutional quality.

Instructional quality for undergraduates can be judged by:

1. The content of courses, curricula, and requirements
2. The expectations of faculty for student performance
3. Supportive contacts between students and faculty
4. The time spent on school work
5. The requirements for reading, writing, and library use
6. The flexibility of teaching-learning methods in relation to the characteristics of students
7. Evidence of student progress and level of attainment in knowledge, skills, and other attributes related to the objectives of courses, curricula, and programs

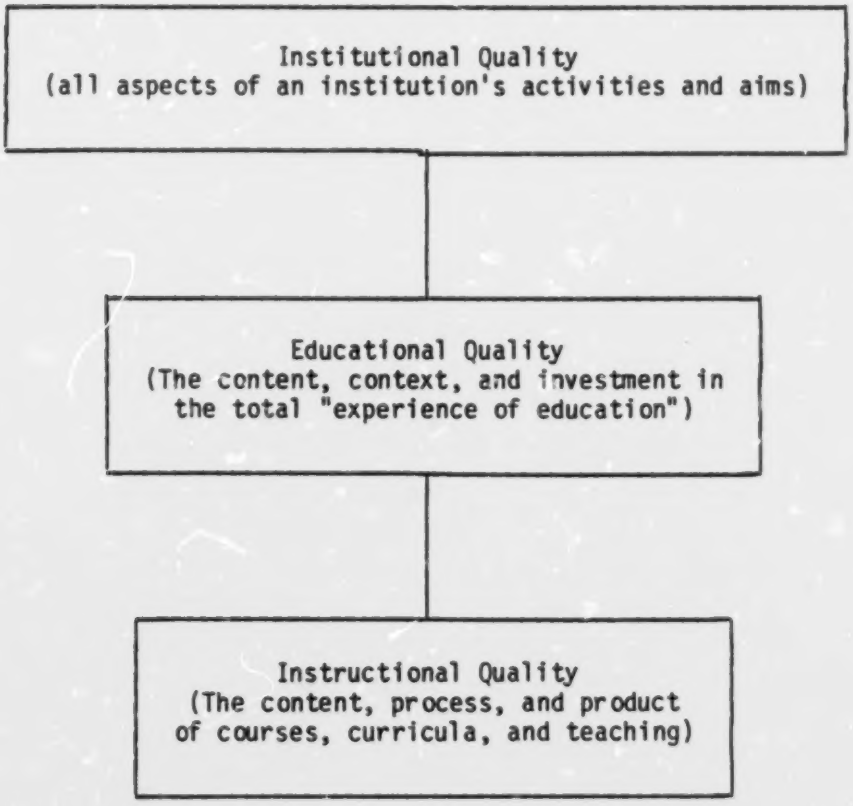
Educational quality for undergraduates can be judged by:

1. The facilities and opportunities provided by the college for student learning and development beyond the classroom - clubs and organizations, the student union, athletic and recreational facilities, residence facilities, counseling and health services, etc.
2. The amount and quality of effort students invest in capitalizing on the above facilities and opportunities
3. The general level and vitality of the student body - intellectually and socially
4. The supportiveness of students' relationships with one another
5. Evidence of student gains with respect to such outcomes as clarifying values and ethical standards, self-understanding, understanding others, teamwork, awareness of and concern about social problems that transcend the boundaries of specific courses
6. General satisfaction with the college experience - intellectually, socially, and vocationally
7. And, all the previously listed indicators of instructional quality

Institutional quality in doctoral granting universities can be judged by:

1. Research and scholarly eminence of the faculty
2. Financial resources for research
3. Contributions to research
4. Services to business, industry, agriculture, and the professions
5. Other services as exemplified by a teaching hospital, dental clinic, psychological clinic, etc.
5. Contribution to the arts, as in musical concerts, plays, art exhibits, etc.
6. Quality of the library, laboratories, etc. for research in special areas
7. Quality of the athletic program
8. Adult education as in extension courses and in the excellence of publications by the University Press
9. Special centers of scholarship -- as illustrated by the Hoover Institute at Stanford, the Kennedy Center at Harvard, the Humphrey Center at Minnesota, the Scripps Institute at UC San Diego, etc
10. Training for the professions and advanced scholarship in the academic disciplines
11. Quality of the educational resources and opportunities for undergraduates
12. Quality of undergraduate teaching and course content
13. And, all the previously listed indicators of instructional and educational quality for undergraduates

The foregoing lists are intended as illustrative rather than as a definitive classification. The important point is that there are many helpful and valid ways to describe institutional, educational, and instructional quality. My own view is that these are three distinguishable levels, and that, like a scale, the smaller levels are also parts of the larger ones.


Institutional Quality
(all aspects of an institution's activities and aims)
Educational Quality
(The content, context, and investment in the total "experience of education")
Instructional Quality
(The content, process, and product of courses, curricula, and teaching)

Instructional quality is part of a larger domain called educational quality, and both, in turn are part of the still larger domain of institutional quality.

The focus of the present report is not on the large domain of institutional quality, its focus is on educational and instructional quality, and more specifically on assessing the quality of the education of undergraduates. The report begins with a framework for thinking about the topic. This is followed by a discussion of the ways in which educational content is typically organized and student achievement is typically measured; plus suggestions for new measures. Then the significance of contexts and processes is noted, with ten suggested measures of process and context variables. Finally, moving beyond the college years, suggestions are made for enriching the content of alumni surveys. How all these quality issues are viewed in relation to concerns for accountability, standards, evaluation and assessment is briefly discussed in a final section, with renewed emphasis on how assessment can best contribute to learning and improvement.

A FRAMEWORK for EVALUATING the QUALITY of
STUDENT LEARNING and DEVELOPMENT in COLLEGE

A study of student development and college influence requires two parallel lines of inquiry -- one focused on the students (the individual) and one focused on the college (the institution). In the overview outline below, I give examples of these lines of inquiry and indicate relevant sources of student and institutional data. Following the outline, with its sequence of leading questions, each topic is illustrated more fully.

Overview Outline

The Question	The Individual	The Institution
Who goes?	Characteristics of entering students	Admissions policy and practices
What do they do after they get there?	Student involvement in using the facilities and opportunities for education	Availability of resources Courses and curricula requirements
What's it like?	Student perceptions of the environmental press Academic, social, administrative	Faculty expectations Physical arrangements Processes of instruction Support services
What do they get out of it?	Evidence of students' knowledge and understanding, intellectual skills, occupational skills, attitudes, interests, values	Graduation, grades, courses completed
And after college, what?	Alumni status Satisfaction	----

Who goes?

Characteristics of entering students can be surveyed by using ACT's Entering Student Survey. This includes background information, educational plans and preferences, college impressions, and a place for 30 additional questions. This additional space could be used for any number of purposes: 1) one could ask questions about values, etc., that would overlap with selected items on the Student Information Form (annual freshman survey conducted by the Higher Education Research Institute at UCLA); 2) one could locally develop a set of items about other matters of special relevance to the college. Having the local faculty and staff develop items of local relevance would be a worthwhile activity and would generate interest in the results. In addition to questions about beliefs and values one may want to know more about the students' previous activities, family background, aspirations, etc.

If the college uses the ACT rather than the SAT as an admissions test, it then also has a measure of the student's entering achievement level in the basic fields of English, math, sciences, and social science and history.

Basically, the college needs to know where the students come from, why they come, what they expect; and especially the initial status of their knowledge, beliefs, values, etc., that the college hopes to influence so that one has an initial reference point for subsequently judging their growth and development. It is this latter element of the question, Who goes?, that is most frequently unanswered. There are, nevertheless, some measures of students' initial status that could be used more systematically in an evaluation or assessment program. Many colleges require an English composition

at entrance and could require one at exit. The subject of the composition could be one that would reveal students' knowledge about the subject, or ability to analyze an argument, or similar insight. The essay could be graded as a "composition", but then also graded by other judges for the level of understanding expressed. A senior essay on the same or comparable topic could also be graded in this dual manner. Also, some students will have taken College Board achievement tests which serve as measures of entering skills and knowledge. Additionally, there are, of course, various measures of attitudes, interest, values, and personality traits that could be given to samples of students, if not to all students. In using such measures as a baseline for subsequently observing change, one needs to be clear that what is measured is changeable (rather than a stable trait) and that change in a particular direction is intended by the goals and the program of the college.

On the institutional side, the answers to the question "Who goes?" will be influenced by admissions policy, recruitment activities, pamphlets, etc. Also by what the college offers and what it says it stands for. What are the features that attract students?

What do they do after they get there?

Pace's College Student Experiences Questionnaire (CSEQ) is the most systematic and comprehensive inventory of student activities (involvement) currently available. It measures the quality of effort students put into using the facilities and opportunities in the college that are intended for their learning and development -- academic facilities such as the library, laboratory, courses, cultural facilities, contacts with faculty, writing experiences, clubs and organizations, breadth and depth of student acquaintances and conversations, etc. (see Pace, CSEQ: TEST MANUAL & NORMS. UCLA Center for the Study of Evaluation, 1987).

One section of the ACT Student Opinion Survey has a list of 23 college services or programs and asks students if they have used the service and whether they were satisfied with it. It also has space for 30 locally developed questions.

Pace's CSEQ reveals the frequency and scope of student activity as well as its quality; but neither that instrument nor the ACT Survey deals with what one might call the clinical experience of college. The experience of college also involves personal/social frustrations and satisfactions, depressions and elations, various encounters that may be personality enhancing or regressive. We need a theory-based measure for these aspects of what happens between entrance and exit.

Courses and curricula are major determinants of what students do in college but we need more sophisticated ways to describe and classify them. Transcripts provide course titles but are much less useful in defining course content. Catalogues describe course requirements and curricula but are not accurate indicators of what students actually take. Course content is also connected to teaching

methods, but transcripts and catalogues do not reveal this connection. A sophisticated answer to the question "What do they do after they get there?" would describe how the student interacts with the courses and curricula. What is the "experience" of the course for the student?

The institutional side of the question "What do they do after they get there?" would note what facilities and resources the institution actually provides. It would also note any requirements regarding the use of facilities, including courses, curricula, credits, etc.

What's it like?

This question refers to characteristics of the college environment and how students perceive it and respond to it. In the CSEQ there are eight rating scales about different aspects of the environment -- its perceived emphasis on academic, esthetic, critical, vocational, and personally relevant matters, and the perceived supportiveness and congenial relationships among students, between students and faculty, and with the administration.

The ACT Student Opinion Survey has a section about the college environment which consists of 42 statements grouped under topics labeled academic, admissions, rules and regulations, facilities, registration, and general -- statements to which students respond by indicating their level of satisfaction. There is also, as in other ACT Surveys, an opportunity for the college to ask up to 30 additional questions.

ACT also has a Withdrawing/Nonreturning Student Survey. This includes items about reasons for leaving -- personal, academic, emotional, financial, and employment. It also has a section about students' satisfaction with college services and with various college characteristics. There is also space for up to 30 additional questions.

In general, student retention/withdrawal can be viewed as the degree of "fit" between the person and the environment in several basic respects -- the level and scope of the academic offerings, the compatibility of the student and the campus social life, and the vocational expectations of the students.

The institutional side of the question "What's it like?" consists of what the institution does to create the campus climate. This would include faculty expectations for students' academic performance, expectations and perhaps rules about proper student conduct, course requirements, various formal and informal processes of instruction, the physical arrangement of the campus, architecture, landscaping, and other elements that help to identify the character of the college and to define "what's it like" to be a student there.

What do they get out of it?

College records will show that the student got a bachelor degree, completed a specific list of courses and the grades received in those courses.

The CSEQ has a list of 21 important goals of higher education, with the students indicating how much gain/progress they feel they have made as a result of their college experiences. These outcomes include various intellectual skills, breadth and depth of subject-matter learning, vocational preparation, and personal/social development. The student reports correlate highly with other indicators of achievement.

Ideally one should have a battery of achievement tests, and measures of interests, beliefs, and values, etc. relevant to the college program and purpose. These tests, or a preliminary version of them, would have been given to entering students so that differences in responses between entrance and exit could then reflect the influence of the college experience on such knowledge, values, etc.

We have some instrumentation for such comparisons with respect to knowledge and understanding of the major academic disciplines -- sciences, social sciences and history, humanities and arts, etc. Tests exist but many are not currently available for this purpose and they are much too expensive. For students aspiring to enter graduate school in a department that requires one of the GRE special field tests, or to gain certification or licensing in certain fields, one could presumably see how well the students do compared with students elsewhere.

There are published measures of values that could be used at entrance and exit -- the Allport-Vernon-Lindzey Study of Values, Rokeach's Instrumental and Terminal Values scales, the Omnibus Personality Inventory, etc.

Also, if the CSEQ is given to a cross-section of students at all levels, one can compare the progress reported by students at the end of the freshman year with progress reported at the end of the senior year.

After college, what?

ACT has an alumni survey questionnaire, intended for recent graduates. It has questions about continuing education, retrospective opinions about college benefits and satisfaction, and employment history. Presumably the alumni office of the college will have continuing contacts with the graduates.

We need an alumni questionnaire intended for graduates after 20 years or so -- seeking insights regarding the quality of their lives and their involvement in civic, cultural, intellectual, and similar aspects of adult life that are relevant to the purposes of higher education.

Process and Context as Outcomes

Some answers to all the above questions -- Who goes? What do they do after they get there? What's it like? What do they get out of it? -- can be obtained from student responses to the CSEQ. The CSEQ not only measures the quality of outcomes (students progress toward important educational objectives), but also the quality of educational processes (frequency, scope, and level of student activity/effort in using the facilities and opportunities for learning and development in college), and the quality of the educational context at the college (characteristics of the educational environment). Usually one regards student achievement/gain as the appropriate dependent or outcome variable, and then seeks to find out how various background factors, process factors, and context factors contribute to the desired outcomes. It is worth noting, however, that one can also regard process and context elements as the dependent or criterion measures. For example, a college might say that it seeks to create and facilitate an undergraduate campus experience characterized by high levels of student involvement and effort. Scores on the CSEQ activity scales would reflect how well this goal was being attained. Similarly, a college might say that it wishes to have an environment that is scholarly, esthetic, and supportive. Student ratings of the environment would indicate whether the college has been sucessful in creating such an atmosphere.

Other Models

The sequence of questions presented here is one model. It is similar in many ways to a model I presented in a previous publication (Pace, Measuring Outcomes of College, Jossey-Bass, 1979) as follows:

- Entrance
  criterion measures at entrance, student characteristics
- College Experiences and Events
  facilities and opportunities
- Student Quality of Effort
  in using the facilities and opportunities
- College Environment
  environmental press
- Exit
  Student development and college impress as indicated by differences between criterion scores at entrance and exit, self-ratings of progress, benefits, satisfactions, attitudes toward college, and subsequently, evidence from alumni studies of continued interests, continued learning, etc.

A general causal model for assessing the effects of differential college environments on student learning and cognitive development was presented by Pascarella in a 1985 publication. (Pascarella, "College environmental influences on learning and cognitive development", pages 1-61 in Higher Education: Handbook of Theory and Research (J. Smart, Editor), Agathon Press, 1985). The model begins with Student Background/Pre-College Traits and with Structural/Organizational Characteristics of Institutions. Then there are three subsequent interrelated elements labeled Interactions with Agents of Socialization (e.g. faculty, peers), Institutional Environment, and Quality of Student Effort. All of the above then have some effect on Learning and Cognitive Development.

It is interesting to note that the Pascarella model deals with all the sequential questions I have suggested as a framework for evaluation. Student background and pre-college traits answer the question, Who goes? Structural/organizational characteristics of institutions and the institutional environment are concerned with the question, What's it like? Interactions with agents of socialization and the quality of student effort are answers to the question, What do they do after they get there? And, learning and cognitive development deals with one major element of the question, What do they get out of it?

In the earlier Pace model and in Pascarella's model there is one highly important variable that is not explicitly identified and emphasized, although it is doubtless implied. This is the content of courses and the curriculum. The next part of this report focuses on educational content and measures of student achievement related to that content.

EXPANDING THE RANGE OF CONTENT MEASURES

How educational content is defined and put together in courses and curricula determines, to a very great extent, how students' achievement should be measured. The question is quite simple: How well are students learning what is taught? But the answers are not simple because the selection and organization of content is complex and serves a variety of purposes which may have relatively little overlap. Some existing tests fit some educational content quite adequately. For other ways of organizing content and defining curricula, there may not be a good fit with existing outcome measures. Moreover, the simple question of how well students are learning what is taught is not sufficiently encompassing. We may also be interested in students' possession of knowledge, concepts, and skills that we regard as important in higher education irrespective of what courses the students have taken.

Three questions are relevant to discussing measures of educational content. First, how is the content organized? In most college courses content is organized by academic disciplines. It may also, however, be organized by the goal of developing competence or skill in some activity. Second, what is the level of content and measurement? It may be a specific course taught by a specific teacher. It may be a fairly well defined set of content (an economics course, for example) but taught by different teachers to different students at different colleges. Or, it may be a cluster of content rather than a specific subject, as illustrated by general tests in the sciences, the social studies, humanities, etc. Third, what is the level of generalization one wants to make from the use of various

measures? It might be a generalization about a particular student or group of students. It may be generalizations about a course, or group of courses defined as a program or a curriculum. It may be the college, as in the level and scope of student achievement compared with other colleges. Or, finally, it may be generalizations about the quality of higher education in the United States.

Most courses and curricula in most colleges are organized by academic disciplines. An academic discipline is a body of knowledge, concepts, and methods of inquiry characteristic of a particular field of knowledge. The knowledge, concepts, and methods of chemistry are different from the knowledge, concepts and methods of psychology. One might also distinguish between a discipline and a subject-matter. Economics is a discipline; money and banking is a subject-matter. One can apply this distinction to the administrative organization seen in most colleges. The department is named for the discipline: the economics department, for example. Then various groupings of subject-matter are the names of courses: international trade, for example.

Daniel Bell holds that there are basic differences in the nature of inquiry between broad fields of knowledge, as illustrated in the following quote.

> "... different principles govern the acquisition of knowledge in the sciences, the social sciences, and the humanities ... In the sciences (and in mathematics), the learning is <u>sequential</u>: within any science stipulated levels of prerequisites define the kinds of knowledge necessary before one can proceed to the next level. In the social sciences, the pattern is one of <u>linkages</u> between fields. Elements of

economic policy, for example, are understandable only in a political context, and this in turn is dependent upon some conception of the social community. In the humanities, knowledge is concentric; one moves within many different circles of meaning in the effort to attain, if ever, an understanding of a text and an experience." (p. 174 in Daniel Bell, The Reforming of General Education, Columbia University Press, 1966).

At UCLA, the nature of content in various fields of study (academic departments offering an undergraduate major) is described in "conceptual diagrams" for the benefit of new students and made available as one part of an Advising Workbook. I have selected four such diagrams for inclusion in the present report -- one from science, one from social science, one from humanities, and one from a social problems topic. These diagrams were prepared by the faculty. Their significance for understanding content is well described in the introduction to this section of the Advising Workbook, as follows:

"The diagrams ... are intended to visually represent the way in which inquiry -- the questions of the disciplines and majors -- is organized within departments. The question(s) at the top of the diagrams are those which define the academic field in the broadest possible way. These central questions are both extremely simple and extremely profound. In the phrasing of these questions, scholars have carved out a chunk of human inquiry and called it their intellectual territory or academic discipline."

"The next level of questions in the diagrams emanates from both the information that has been established to date and the directions in which discovery and thought about the subject are aimed. These are the subfields of the majors, and they serve to organize further inquiry into manageable pieces. The third level questions flow from the second level. In many cases, these are the questions that are actually being asked by UCLA faculty through their ongoing research. Collectively, these questions represent the frontiers, the borders and the boundaries of what we now know and are seeking to understand better."

PHYSICS

What are the laws of nature that govern the behavior of matter from the most microscopic particles to the large scale structure of the universe? How do you express these laws mathematically? How do you discover and verify them experimentally? How are the laws of nature related to one another? For example, how is electricity related to magnetism and light?

ELEMENTARY PARTICLES, NUCLEAR AND ATOMIC PHYSICS

What are the basic mathematical laws that govern the number and properties of the elementary particles?

- **What particles make up the atomic nucleus? What are those particles made of?**
- **How do atoms interact with each other and with light?**

LIQUIDS, GASES AND PLASMAS

What is the interrelation between atoms that make a substance a liquid rather than a gas or a solid?

- **How do liquids flow and why can these liquids be turbulent?**
- **Can we use statistical properties of a system of many independent atoms to describe gases?**
- **What happens when gases become so hot that their atoms become ionized and they conduct electricity?**

SOLID STATE PHYSICS

In what patterns do atoms combine to form crystals, polymers, and more exotic substances? How do these patterns depend on temperature?

- **How do these substances conduct electricity and heat? What are semiconductors and superconductors?**
- **Why are some magnetic and others not?**

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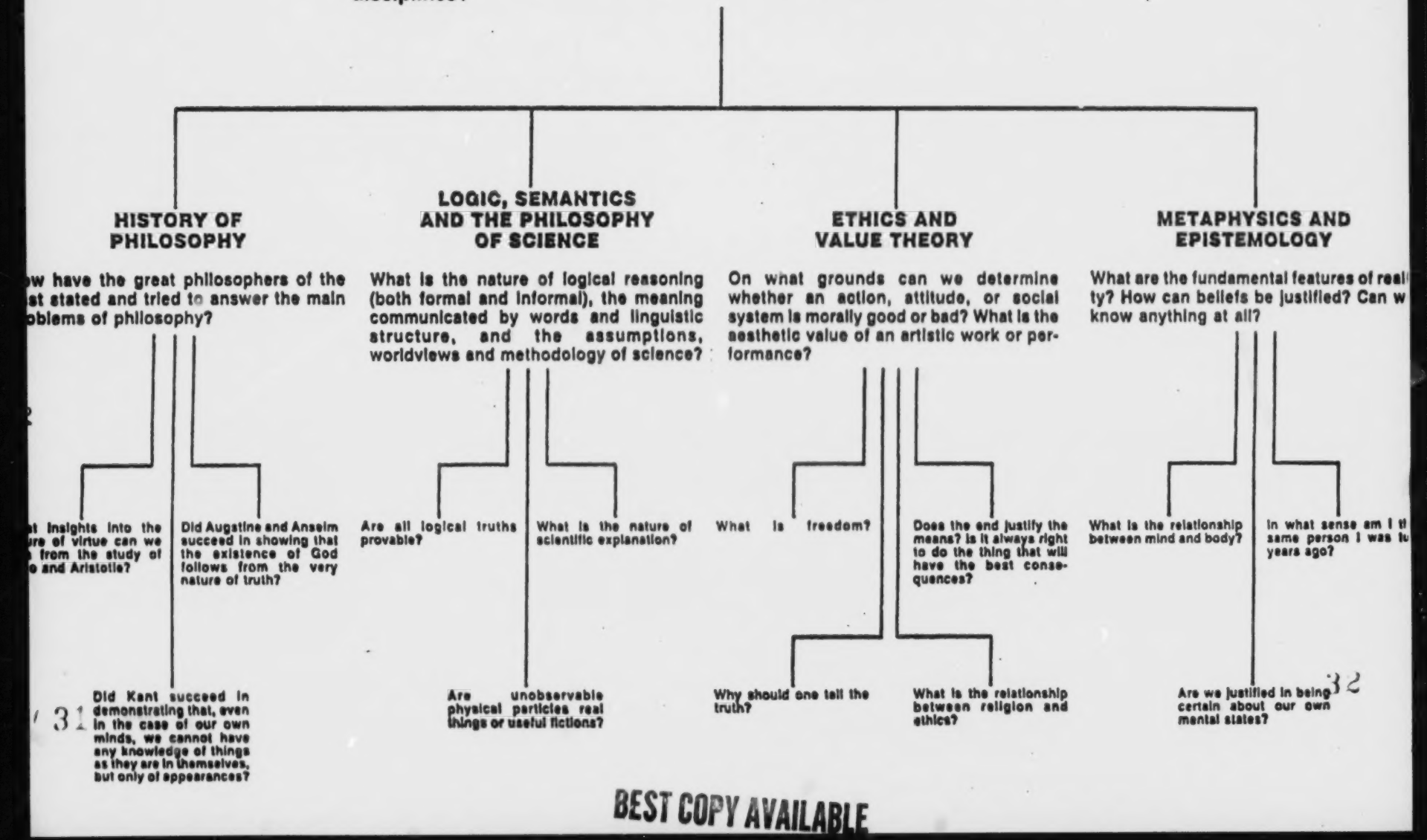
PHILOSOPHY

How can one apply rigorous conceptual analysis to the many issues of human thought and life which resist solution by the methods of other academic disciplines?


HISTORY OF PHILOSOPHY
LOGIC, SEMANTICS AND THE PHILOSOPHY OF SCIENCE
ETHICS AND VALUE THEORY
METAPHYSICS AND EPISTEMOLOGY
w have the great philosophers of the st stated and tried to answer the main oblems of philosophy?
What is the nature of logical reasoning (both formal and informal), the meaning communicated by words and linguistic structure, and the assumptions, worldviews and methodology of science?
On what grounds can we determine whether an action, attitude, or social system is morally good or bad? What is the aesthetic value of an artistic work or performance?
What are the fundamental features of reali ty? How can beliefs be justified? Can w know anything at all?
t insights into the re of virtue can we from the study of o and Aristotle?
Did Augstine and Anselm succeed in showing that the existence of God follows from the very nature of truth?
Are all logical truths provable?
What is the nature of scientific explanation?
What is freedom?
Does the end justify the means? Is it always right to do the thing that will have the best consequences?
What is the relationship between mind and body?
In what sense am I th same person I was tw years ago?
Did Kant succeed in demonstrating that, even in the case of our own minds, we cannot have any knowledge of things as they are in themselves, but only of appearances?
Are unobservable physical particles real things or useful fictions?
Why should one tell the truth?
What is the relationship between religion and ethics?
Are we justified in being certain about our own mental states?

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ECONOMICS

How do people choose to spend their incomes? How do they decide on the best use of their labor and other resources? What determines the comparative wealth of nations and rates of growth and decline?

THEORY, METHODS, MATHEMATICS AND STATISTICS

What theoretical models of the economic system and process can help us to understand and predict economic goals and outcomes, and how can mathematics and statistics be used to model, measure, and predict the changes in a performance of an economic system?

How can evolving models in economics and law AND conflict versus cooperation strategies be compared?

URBAN AND REGIONAL ECONOMICS

What issues are raised in economic theory and analysis when applied to urban areas where issues of transportation, housing, and labor markets are of prime importance?

How do labor laws affect the welfare of municipal workers?

PUBLIC FINANCE

What are the roles and responsibilities of national, state, and local governments in terms of taxation, public spending, and fiscal management?

What are the characteristics of a monetary authority that will lead to a socially optimal inflation rate?

ECONOMIC INSTITUTIONS

What are the historical origins and history of the present economic system and institutions such as banking, private business, labor unions, and industry?

What are aspects of the early industrialization in the American Northwest?

LABOR AND ECONOMICS

What is the nature of the relatio ship between labor, wage business cycles, unemploymer labor unions, private industr and public (governmenta policy?

What is the relationship between inventories of goods and the layoff of workers over the business cycle?

INDUSTRIAL ORGANIZATION

How are companies, corporations, partnerships, and other business firms structured and organized and what is their role in an economy?

What is the nature and process of the separation of ownership and control in the modern corporation?

MONEY AND BANKING

Where does money come from and how is its supply regulated? How does a banking system work and what is a bank's relationship with inflation, interest, and an economy?

What determines the interest rate paid on international loans that are backed by the government of the borrower and there appears to be a probability of default?

INTERNATIONAL ECONOMICS

How are the economics of nations linked through international trade, commerce, and monetary policy?

Is a country's trading relations with other countries a function of its own productive factors?

ECONOMIC DEVELOPMENT

How and why do national economics grow or not grow and how can developing countries best achieve their economic goals?

How do differing sets of monetary exchange rules affect the performance of the economies of various Latin American countries?

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WOMEN'S STUDIES

What is and what has been the female experience? How does the cultural sex/gender system affect our institutions, our culture, our interpersonal relationships, our personal development, our employment and family structures, and our systems of knowledge? How does studying the world from a female perspective affect the questions, methods, conduct and conclusions of research?

LITERATURE

How have women been portrayed in literature? What are the themes, forms, and techniques of women's literature, how are these expressed in characters, symbols, and perspectives, and how have they evolved?

- ...at is the nature and ...nge of English and ...erican literary works and about women?
- What is the nature and range of French literature by and about women?

HISTORY

What has been the nature of women's lives and contributions in traditional and modern societies? How and why have the social, economic and political roles and conditions of womanhood evolved?

- What are the socio-historical foundations of Chinese, European, Russian and West African women's political and economic actions?
- What are the demographic, economic, social and intellectual conditions that have shaped women's lives in different periods of American history?

PSYCHOLOGY

How does the existence of biological sex and a cultural sex/gender system affect women's and men's experiences, behaviors, perceptions, evaluations, and interactions? How may understanding sex and gender contribute to our understanding of the mental and emotional forces and processes of female and male experience? How may studying women's experience inform our knowledge of human development and personality?

- What are the effects of job discrimination, tokenism, changing work roles and dual-career marriages on female psychology and the quality of women's lives?
- How do sex and gender affect personality differences, intellectual achievement and social interaction?

HUMANITIES AND SOCIAL SCIENCES

How do specific theories and ideas about human experience and its expression change when women are the focus and center of the inquiry?

- What is the relationship between traditional ethnographic theory and the female roles which have been emphasized in the social and anthropological literature on traditional and contemporary societies?
- What are the social psychological, politica and economic force which impact upon the in terpersonal relationship of Black women a members of thei biological and ethnic groups?
- How is women's status and role expressed in Greek, Roman and Early Christian myth, art and literature?
- What are the concept and principles whic underlie women's right issues such as educational and economic equality, abortion, sexua morality, and roles in marriage, love and

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One can see in these conceptual diagrams that the content of physics and of philosophy is mainly structural. Economics, on the other hand, reveals a division with nine sub-topics, with some linkages between them. One can also see, from the various questions, that economics has many linkages with other social studies -- especially political science, sociology, and psychology. Women's studies has a set of questions that are similar to many social problems or integrative fields -- namely viewing the topic from several different perspectives: from literature, history, psychology, and humanities and social sciences.

The last of these conceptual diagrams, women's studies, represents a different way of organizing content. There may be a growing interest in interdisciplinary courses, and in programs related to basic social issues. For example, one of the most popular undergraduate majors at Stanford is "human biology." At the College of the Atlantic in Maine the entire curriculum is organized around the broad topic of "ecology." These special combinations are a third, and perhaps increasingly popular, way of organizing content; but we do not presently have standardized tests for that content.

In addition to the organization by academic disciplines, and by social issues or problems, many of the courses in professional schools represent a third and very common basis for determining content -- namely, the development of some skill or competence. This is seen in such fields as education, engineering, medicine, dentistry, aspects of architecture, social work, nursing, business, performing arts, athletic activities, and a host of skilled trades.

For the most common ways of organizing content there are many published achievement tests. For example, both Educational Testing Service and the American College Testing Program prepare tests for certification or licensing in various fields -- a certified public accountant, a license to fly an airplane, or sell real estate, or operate a beauty parlor, or teach school. In medicine, dentistry, nursing, teaching, or performing art, etc. the ultimate test is the direct observation of performance or skill. Paper and pencil tests can describe a situation or case and ask "what would you do in this case?" But that is not an adequate substitute for observing the actual behavior. For content organized by academic disciplines there are many achievement tests. This is the most common type of test. Unfortunately many of those good tests are available only for some special purpose and are not, at the present time, available for the general purposes of evaluation and assessment of programs. Some colleges require students to take one or more achievement tests in addition to the SAT in applying for admission; but those achievement test are available only for that purpose. Some professional schools require all applicants to take a test -- for example, the medical school and law school tests. Some graduate departments also require an achievement test in the discipline. All these test are constructed to serve a specific paying clientele.

Standardized achievement tests in various fields reflect the collective judgments of professors from various colleges, and the writers of textbooks assigned to many students, about relevant content and understanding of the field. The use of such measures enables one to view student performance in a national perspective as well as in the local perspective of the local college.

Most of these tests are measures of students' knowledge and understanding of an academic discipline. Since most courses are also organized by academic disciplines, the tests are relevant for the evaluation of instruction; although obviously the specific objectives and content of a course taught by a specific professor to a specific class of students may differ in a good many ways from the content of the standardized test. Tests for evaluating broader general education goals are even less clearly related to instruction. Moreover, there may be less agreement today than there was a few decades ago about what the content of such general achievement tests should be. Also, the published tests are norm-referenced to maximize finding reliable individual differences; whereas many current attitudes about testing favor competency-based, or content-based instruments that seek to define mastery or minimum standards rather than sorting students along some distribution of scores. And further, the emphasis of some evaluators on using only measures specifically made for the objectives of a specific course is a barrier to the use of more general measures.

For the evaluation of learning and instruction in a single course, the judgment of the professor is probably the best evidence we have, or can ever have, about students' mastery of the educational content. The best judge of what a student understands about economics is the professor of the economics course. The professor has observed the student in class, graded the mid-term and final exams, read the assigned papers. Moreover, the professor usually has years of experience, involving many students, in making these judgments. The professor's evaluation, expressed as a letter grade, is both reliable and valid within the reasonable limits of human frailty and dedication to fairness. By and large, then, there is nothing "wrong" with professors'

grades as a measure of learning the content of a course. The criticisms of grades apply to the fact that they have an individual and local definition, not a collective or national definition. An A at Swarthmore does not mean the same as an A at San Jose, because the grade reflects performance relative to the competition. This is widely regarded as a criticism of grades as a criterion of learning; but, in fact, it should not be regarded as an invalidation of the grade given by a professor to students in a particular course; it is, rather, an invalidation of interpreting grades gained under different conditions as if they were gained under the same conditions.

For assessment, accountability, or accreditation purposes, student performance on measures that are somewhat broader in scope than the objectives of a single isolated course are needed. The referent is the program or the college, and the quality that can be attributed to it rather than the individual student in the single classroom.

For this broader scope of evaluation a variety of new measures may be needed. Given the diversity of institutions, curricula, and courses it is unlikely that any one measure, or any required battery of measures, could cover the variety that exists. The more prudent, and I believe more realistic, approach is to encourage the construction of many new measures and to suggest their use by any college that finds them interesting and relevant. For the remainder of this chapter I offer some suggestions about new measures.

1. A vocabulary test. Introductory courses introduce students to the vocabulary of the field -- a vocabulary which stands for its basic concepts and elements. A vocabulary test could be viewed as measuring students' familiarity with the language of intellectual discourse. One might think of a broadly educated person as one who has at least some understanding of what experts and scholars are saying! This would reflect a somewhat different view of general education. In an age of specialization and of the departmentalization of subject-matter, perhaps the generally educated person could be viewed as one who is familiar with more than one specialization. In any case, a vocabulary test measuring students familiarity with the language of different academic disciplines should be relatively easy to construct. For example, in the UCLA conceptual diagrams of what an academic discipline is all about, one can see examples of the language of the field, a language one needs to know if one is to understand the field.

Note the following words in the conceptual diagram for physics: electricity, magnetism, light, particles, atoms, gases, solids, liquids, plasma, polymers, nucleus, ionization, conductors. In the conceptual diagram for sociology, not included here, I noted the following: social structuring, alienation, social norms, social status, social class, social mobility, family, birth rate. In a conceptual diagram for psychology I found such terms as perception, maturation, conditioning, unconscious, prejudice, cognition, emotions. In the conceptual diagram for biology, I noted these terms: ecology, habitat, neurons, cells, genes, proteins, chlorophyll. One could, of course, readily identify the fundamental terms of a field by examining the introductory textbooks.

Suppose one constructed a vocabulary test that consisted of 10 terms in each of five basic sciences (physics, chemistry, biology, astronomy, and geology), plus 10 terms in each of five basic social sciences (anthropology, sociology, economics, political science, and psychology), plus 10 terms in each of five areas in the humanities (language, literature, history, philosophy, and fine arts). This 150 item vocabulary test could be subdivided in various smaller weighted combinations, split into equivalent forms, or arranged in other ways to fit the interests of the college. It is, in short, a flexible and adaptive measure. And presumably, whatever variations there are in the way courses are taught and in who teaches them, a course in physics would involve a common basic vocabulary.

To illustrate the possible content of a vocabulary test I have jotted down two words under each of 15 disciplines -- words which I suspect one might encounter in conversations or writings about the topic and which presumably one should know if one is to comprehend what the experts are talking about.

Science	Social Science	Humanities and Arts
Chemistry	Anthropology	Language
carbon	culture	linguistics
molecules	mores	grammar
Physics	Sociology	Literature
plasma	class	satire
nucleus	alienation	plot
Biology	Economics	Fine Arts
genes	GNP	abstract
protein	tariff	romantic
Astronomy	Political Science	History
galaxy	bureaucracy	civilizations
light year	proletariat	traditions
Geology	Psychology	Philosophy
fossil	emotions	logic
crust	perception	metaphysics

2. Understanding basic concepts. Whereas a vocabulary test might be constructed in a multiple-choice objective format, a test of understanding basic concepts could be in essay form; although it also could be in a multiple-choice format. By basic concept I mean beliefs, propositions, theories, etc. that have had a significant bearing on how man views the world. While these concepts have their roots in academic disciplines they have become very broadly influential in many walks of life. Here are some examples: the concept of relativity in physics, the concept of evolution in biology, the concept of ecology in viewing the environment, the concept of culture in anthropology, psychoanalytic concepts in psychology and psychiatry. How well can students describe and explain these concepts?

3. Understanding major values. Liberal education is typically described as concerned with fundamental values. Especially from literature and the humanities one presumably gains insight about such values as truth, beauty, liberty, justice, freedom, loyalty, love, equality, etc. In a previous chapter I suggested that the admissions requirement of an English composition could serve multiple purposes. The topics assigned for these compositions could include ones that would reveal students understanding of important values. One could ask "What does freedom mean and how is it exemplified in individuals and society?" The same or similar topic could be assigned to seniors. One would hope that the meaning, range of application, and maturity of understanding exhibited in the responses of seniors would be better than in the responses of freshmen. The freshmen essays could be read first as English compositions, as they are now; but later read by a different group of judges (philosophers, historians, etc.) for the breadth and depth of understanding of the idea or concept.

4. A current affairs test. This was done in the 1930's at Minnesota's General College, and subsequently published as a special feature in Time magazine. This doesn't specifically relate to college curricula, but it does exemplify a belief that knowledge of current events is important. The General College had a course titled Contemporary Affairs in which the basic readings were the daily Minneapolis or St. Paul newspaper, the Sunday New York Times, and Time magazine. One hundred of the items written originally for the course exam were later printed in Time magazine, together with a scoring key (no peeking!), and a few general comments about the distributions of scores at the college -- i.e. if you answered 85 or more of the questions correctly your score is very, very good. The content of the current affairs test was divided into specific topics -- national affairs, international affairs, science, literature, arts, etc. If the idea of an annual current affairs test were revived, and developed in a way that could get responses from high school students, college students, and adults, it could become a national indicator of public awareness -- similar to a Gallup poll but dealing with knowledge rather than opinions.

5. A test that seeks to integrate knowledge, attitude, and action. Most objectives of general liberal education are integrative: for example, "to participate as an informed and responsible citizen in accord with democratic ideals." We do not have any measures that deal with this sort of integration within the individual. A design for doing this was described in my book on Measuring Outcomes of College. This was presented as an idea which someone might wish to develop. Last year, in connection with a research project, I put together a few items

which, again, illustrated the idea. The sponsors of the research were interested in exploring connections between knowledge about a topic, attitudes about it, and the sources of this knowledge and attitudes. The sponsoring agency was particularly interested in the relationship between religious beliefs and attitudes about social issues; so because of the religious interest of the sponsor, test items were written in relation to issues about which some underlying religious belief might be applicable -- the environment, nuclear weapons, poverty, the family, materialism, etc. I have illustrated one brief set of items here as an example of a test structure or design. The opportunity to develop and actually pretest the idea was not forthcoming because the project was canceled for financial reasons.

In this example which follows there are three sets of questions: 1) what do students believe is true about the topic? 2) what attitudes/values do they have? and 3) to what extent do their responses reflect experiences in school and/or serious personal thought?

TOPIC: THE ENVIRONMENT

BELIEFS

What is your belief about each of the following statements? Check (x) one of the responses to the left of each statement.

TRUE	PROBABLY TRUE	DON'T KNOW	PROBABLY FALSE	FALSE	
___	___	___	___	___	1. In many places in the U.S. the underground water table is being rapidly depleted.
___	___	___	___	___	2. Pesticides, toxic wastes, etc. are polluting wells and other sources of drinking water.
___	___	___	___	___	3. Air pollution from industry, and the fallout of acid rain, are destroying thousands of trees in the forests and fish in the lakes.
___	___	___	___	___	4. So far, no safe way to dispose of radioactive materials has been found.
___	___	___	___	___	5. The increased use of plastics creates increased disposal problems because plastics are not biodegradable.

ATTITUDES/VALUES

Indicate your own attitudes/values about each of the following statements. Check (x) one of the responses to the left of each statement.

STRONGLY AGREE	AGREE	NO OPINION	DISAGREE	STRONGLY DISAGREE	
___	___	___	___	___	1. We will all survive or perish depending on how we use and conserve the resources of the Earth.
___	___	___	___	___	2. An environment that will not support animals, fish, birds, insects, and plants will not support people either.
___	___	___	___	___	3. The Earth is so big and bountiful that it can support its human population for many generations into the future.
___	___	___	___	___	4. The Earth is God's creation and we are responsible to God for the stewardship of its resources.
___	___	___	___	___	5. Science and industry should not be allowed to produce materials that seriously pollute the land, sea, or air, even if that means unemployment for many people who now work in those industries.

REFLECTIONS

To what extent have any of your experiences in school (classes, readings, etc.) led you to think about and develop your views on this topic of THE ENVIRONMENT? Check (x) one of the responses below.

___ very much
___ quite a bit
___ some
___ very little

Regardless of where your views may have been acquired, to what extent do they reflect knowledge and serious thought on your part? Check (x) one of the responses below.

___ very much
___ quite a bit
___ some
___ very little/I haven't really given much thought to this topic

One could add another set of responses about personal actions related to the topic, such as: took old papers to a reycling center; belonged to a conservation group such as the Sierra Club or the Audubon Society; etc.

A test design similar to the one illustrated for "The Environment" could provide professors and researchers with a new level of diagnostic insight about students' understanding of educational content.

The present discussion of current and new content measures has been limited to achievement tests. There are many other outcomes one should measure in evaluating the quality of students overall educational experiences -- measures of attitudes, interests, values, and similar topics that go beyond a set of courses -- but my comments have concerned measures of content. Content defines what students are supposed to learn. The presumption is that they will know more at the end of a course than they knew at the beginning, or perform a task better after instruction and practice. This is always true. It is impossible for a student to know more about King Lear before he has read the play than he will know after he has read it. One can, in fact, project this obvious truth to the entire course-taking experience in college. A college graduate will have satisfactorily completed about 30 to 45 different courses (depending on whether the college term is divided into two semesters or three quarters). In every one of those courses the students' knowledge and understanding of the subject will have been demonstrated to the satisfaction of an expert judge (probably measured by course examinations); and in every case the student will know more about the subject at the end of the course than he knew at the beginning. A formal program of pre- and post- testing is not necessary to prove the obvious.

To the question, "Who knows what about what outcomes?" surely one set of valid answers would come from the people who are closest to the action. Those closest to the action are the actors themselves -- the professors and the students. In a monograph prepared for the Center for the Study of Evaluation at UCLA in 1985 (Pace and others, The Credibility of Student-Self Reports) evidence was assembled showing that, with respect to many outcomes, students are very good judges of progress. The College Student Experiences Questionnaire (CSEQ) contains 21 statements of goals and asks students to rate their progress or gain. Eight of those goals have some clear connection with college courses -- science, art, humanities. We know from decades of achievement testing that majors know more about their major field than other students know. The students' ratings of progress are totally congruent with what we know from achievement test scores. So, when considering measures of achievement, we need to remind ourselves that professors and students are valid judges and reporters.

EXPANDING the RANGE of MEASURES of EDUCATIONAL PROCESSES and CONTEXTS

Courses, content, programs, and curricula all exist in a context that is larger than their own specific boundaries. The development, progress, and attainment of students is influenced by this larger context and by the processes with which learning and instruction are carried out. The size and scope of the college or university itself is an example of this larger context. In some of the larger colleges and universities the liberal arts are a minority culture in a predominantly vocational environment. In some colleges and universities nearly all, or a large percent of students, live in college housing. In other places most students are commuters. These are obvious institutional features. The focus in this chapter on context and process is on measures of the educational or psychological context, not on the physical or demographic features. The chapter begins by presenting several measures of this overall psychological context. Then, measures more explicitly focused on the process of teaching and learning are illustrated.

Some of the measures described in this chapter were originally part of a questionnaire that was answered by about 7300 upperclassmen in 79 colleges in 1969. The results of this larger inquiry have been published. (Pace. The Demise of Diversity? A Comparative Profile of Eight Types of Institutions. Carnegie Commission, 1974.) Others are special item combinations selected from College and University Environment Scales (CUES) initially published by ETS in 1963. These measures and others were included in the Higher Education Measurement and Evaluation

Kit, a loose-leaf collection of measures distributed to over 1000 colleges and univesities in the years 1971-1975 by UCLA's Center for the Study of Evaluation. The Kit is now out-of-print. We have selected, and in some cases slightly modified, some of that material for inclusion in this report. The relevance of the measures to the assessment of quality in the instructional and educational experience of undergraduates is emphasized in the notes describing them.

The College Environment

College environments differ from one another. The character or atmosphere of a particular campus results from many things -- the nature of its student body and staff, the variety and emphasis of its academic program, its various pressures and expectations, prevailing customs, procedures, and policies, and its relationship to political and cultural events in the larger society. An instrument for measuring these differences, the College and University Environment Scales (CUES) was used by several hundred schools following its initial publication by the Educational Testing Service in 1963. The complete instrument is no longer available, but selected items could still be used to characterize the college environment.

Students who are familiar with the environment from having lived in it for more than a year serve as reporters, indicating if, in their experience and perception, the condition or event described by each of the statements is "true" about their college. When there is consensus among the reporters by a margin of two to one or greater, the statement is regarded as being "characteristic" of the campus.

The statements selected for this brief environment scale can be grouped under four dimensions:

1. Practicality - an environment characterized by enterprise, organization, material benefits, and social activities; vocational and collegiate emphases; orderly supervision. (items 1-4)
2. Community - a friendly, cohesive, group-oriented campus. (items 5-8)
3. Awareness - campus encourages concern about social and political problems, expressiveness through the arts, tolerance of criticism. (items 9-12)
4. Scholarship - an environment characterized by intellectuality and scholastic discipline, intellectual achievement, and the pursuit of knowledge. (items 13-16)

In each item, the response TRUE is consistent with the dimension it defines. This abbreviated version of CUES is illustrated here. The items selected are reasonably reflective of the range of content in each of the longer scales of the original instrument.

THE COLLEGE ENVIRONMENT

Directions: Facilities, procedures, policies, requirements, attitudes, etc., differ from one campus to another. What is characteristic of your campus? As you read each of the statements below, check the space under TRUE (T), if the statement describes a condition, event, attitude, etc. that is generally characteristic of your college; or under FALSE (F) if it is not generally characteristic of the college. Please answer every statement.

Generally T	Generally F	
___	___	1. Frequent tests are given in most courses.
___	___	2. The college offers many really practical courses such as typing, report writing, etc.
___	___	3. The most important people at the school expect others to show proper respect for them.
___	___	4. There is a recognized group of student leaders on campus.
___	___	5. Many upperclassmen play an active role in helping new students adjust to campus life.
___	___	6. The professors go out of their way to help you.
___	___	7. The school has a reputation for being friendly.
___	___	8. It's easy to get a group together for card games, singing, going to the movies, etc.
___	___	9. Students are encouraged to criticize administrative policies and teaching practices.
___	___	10. The school offers many opportunities for students to understand and criticize important works in art, music, and drama.
___	___	11. Students are actively concerned about national and international affairs.
___	___	12. Many famous people are brought to the campus for lectures, concerts, student discussions.
___	___	13. Most courses are a real intellectual challenge.
___	___	14. Students set high standards of achievement for themselves.
___	___	15. Most courses require intensive study and preparation out of class.
___	___	16. Careful reasoning and clear logic are valued most highly in grading student papers, reports, or discussions.

Campus Morale

The Campus Morale scale presents another dimension for describing the context or setting in which learning and development are promoted. Items comprising this measure have also been drawn from College & University Environment Scales.

Following an analysis of the kinds of items that have been used in the study of morale in other organizations--mainly military and industrial--we developed an outline of the most common content. Next we examined the 150 items in CUES and identified 55 whose content appeared to be relevant to the concept of morale. We then made statistical and psychometric studies of how well these items held together in what might be regarded as a common scale. The final result is a set of 22 items that can be appropriately used to produce an indication of Campus Morale. This morale scale is not a measure of individual student morale; it is a measure of campus morale. Operationally the judgment about Campus Morale is the number of "morale-relevant" statements which are seen as characteristic of the institution, defined as consensus among reporters by a margin of two to one or greater.

Further analyses of the 22 items have shown that they can be grouped into five categories or factors, as follows: 1) students' freedom of expression, 2) assimilation into campus life, 3) group cohesiveness, 4) commitment to intellectual goals, and 5) identification with social norms. A high morale campus describes an environment characterized by acceptance of social norms, group cohesiveness, friendly assimilation into campus life, and also a commitment to intellectual pursuit and freedom of expression. Intellectual goals are exemplified and widely shared in an atmosphere of personal and social relationships that are both supportive and spirited.

For each item the high morale response is indicated by X.

CAMPUS MORALE

Directions: Facilities, procedures, policies, requirements, attitudes, etc., differ from one campus to another. What is characteristic of your campus? As you read each of the statements below, check the space under TRUE (T), if the statement describes a condition, event, attitude, etc., that is generally characteristic of your college; or under FALSE (F) if it is not generally characteristic of the college. Please answer every statement.

Generally

T	F	
X		1. The big college events draw a lot of student enthusiasm and support.
	X	2. Anyone who knows the right people in the faculty or administration can get a better break here.
X		3. The professors go out of their way to help you.
X		4. Students have many opportunities to develop skill in organizing and directing the work of others.
X		5. Many upperclassmen play an active role in helping new students adjust to campus life.
X		6. When students run a project or put on a show everybody knows about it.
X		7. Students exert considerable pressure on one another to live up to the expected codes of conduct.
X		8. There is a lot of group spirit.
	X	9. Most of the faculty are not interested in students' personal problems.
X		10. The school helps everyone get acquainted.
X		11. Channels for expressing students' complaints are readily accessible.
X		12. A controversial speaker always stirs up a lot of student discussion.

CAMPUS MORALE (continued)

T	F		
X		13.	Many students here develop a strong sense of responsibility about their role in contemporary social and political life.
	X	14.	The expression of strong personal belief or conviction is pretty rare around here.
X		15.	There is considerable interest in the analysis of value systems, and the relativity of societies and ethics.
X		16.	Students are conscientious about taking good care of school property.
	X	17.	Students pay little attention to rules and regulations.
	X	18.	Many students seem to expect other people to adapt to them rather than trying to adapt themselves to others.
X		19.	Most of the professors are very thorough teachers and really probe into the fundamentals of their subjects.
X		20.	Students set high standards of achievement for themselves.
X		21.	Students put a lot of energy into everything they do--in class and out.
X		22.	Most courses are a real intellectual challenge.

Environmental Emphases

The College Student Experiences Questionnaire (CSEQ) includes a section labeled The College Environment. There are eight rating scales for students to indicate their perceptions of the environment. Five of those ratings are about the environmental press or emphasis which students believe the college gives to certain lines of student development. This portion of the CSEQ is reproduced below:

THE COLLEGE ENVIRONMENT

Colleges differ from one another in the extent to which they emphasize or stress various aspects of students' development. Thinking of your own experience at this college, to what extent do you feel that each of the following is emphasized? The responses are numbered from 7 to 1, with the highest and lowest points described. Fill in the space of whichever number best indicates your impression on this seven-point rating scale.

Emphasis on the development of academic, scholarly, and intellectual qualities

Strong emphasis 7 6 5 4 3 2 1 Weak emphasis

Emphasis on the development of esthetic, expressive, and creative qualities

Strong emphasis 7 6 5 4 3 2 1 Weak emphasis

Emphasis on being critical, evaluative, and analytical

Strong emphasis 7 6 5 4 3 2 1 Weak emphasis

Emphasis on the development of vocational and occupational competence

Strong emphasis 7 6 5 4 3 2 1 Weak emphasis

Emphasis on the personal relevance and practical values of your courses

Strong emphasis 7 6 5 4 3 2 1 Weak emphasis

These characterizations of environmental emphases are further examples of the context for student learning and development.

Style of Learning: Academic

The general manner in which students pursue their academic work differs from one campus to another. There are also obvious differences among students on any one campus, related to their personal characteristics and to the subjects they are studying.

The items in this scale measure the degree of "academic involvement and intensity" -- the style of one's effort in relation to the acquisition of knowledge and understanding from courses and readings, such as participation in class discussions, talking with professors, devoting concentrated periods of time to academic work, and reading related but unassigned materials. A high score on this scale signifies a high level of scholarly intensity and participation in academic life.

Although the scale in its present form has not been pre-tested, the content was suggested by previous study in which a panel of 20 to 25 students at each of four quite different colleges and universities kept a detailed timelog of academic activities for a period of one week. From that study it was found that certain types of activities were much more common on some campuses than on others, and that these differences seemed to reflect a particular learning style and intensity.

Some of the items from this scale have subsequently been used in Pace's College Student Experiences Questionnaire.

STYLE OF LEARNING: ACADEMIC

Directions: Please check (X) each activity you engaged in during the most recent "typical" week.

During a typical week:

____ 1. I participated in a class discussion.

____ 2. I had a conversation, lasting a half-hour or longer, with one or more of my professors.

____ 3. I discussed with other students for an hour or longer the subject-matter of one or more of my courses.

____ 4. I spent a concentrated period of time--three hours or longer without interruption--studying for one of my courses.

____ 5. I studied at least four hours or longer during the weekend.

____ 6. I read a book related to one of my courses but that was not an assigned reading for the course.

____ 7. I spent five or more hours writing papers.

____ 8. I spent some time just browsing in the library or bookstore.

____ 9. I participated in a research project.

____10. I spent five hours or more looking up references in the library and taking notes.

Style of Learning: Experiential

The college years provide students with many opportunities for personal and social development--meeting new people, encountering new social situations, and facing problems of personal choice. Some people believe that one way to make education more "relevant" is to give greater recognition to the value and significance of direct personal experiences, making self-understanding, social insight, and personal growth relevant educational objectives. Student interest in sensitivity training, encounter groups, urban problems, minorities, ghetto children, student-faculty relations, etc. are pertinent to this aspect to education. Some of these activities may not be as common today as they were in the 1960s.

The items in the scale have not been pre-tested. The scale was developed to provide a counterbalance to the scale on academic learning, and to enable colleges to gain systematic knowledge about the nature and extent of these other kinds of learning experiences.

STYLE OF LEARNING: EXPERIENTIAL

Directions: Check (X) each activity you have engaged in during the past term.

During the past term:

____ 1. I participated in a sensitivity group.

____ 2. I became well acquainted, personally and socially, with a student whose race is different than mine.

____ 3. I became well acquainted with a foreign student.

____ 4. I did some work with children or parents in a neighborhood different from mine.

____ 5. I had one or more long and private conversations with a professor or counselor.

____ 6. I was in an informal social gathering where students and faculty members came to know one another personally (not just superficially).

____ 7. I had the experience of being in a marathon encounter group.

____ 8. I helped a student who was having difficulty in a course.

Educational Experiences & Preferences

Students prior educational experiences and preferences for different styles of learning have a bearing on what and how they are likely to learn best. With many new modes of teaching, and with the diversity of students in higher education, the effectiveness of teaching and learning within a college is partly a problem of providing enough variability in the instructional forms it offers to accommodate students of the various styles (abilities, intellectual disposition, personality traits) it enrolls.

One personal characteristic, variously described as authoritarian vs. non-authoritarian, rigidity vs. flexibility, dependence vs. independence is related to intellectual disposition and to preferences for certain kinds of learning experiences. The brief questionnaire we have composed is not described as a personality test and has not been validated as such. Nevertheless, it is indirectly a personality preference for highly explicit vs. more open-ended educational activity, with the items equally divided between experiences that are highly structured and explicit and experiences that are more flexible, autonomous, or open-ended.

The questionnaire could be used as a pre-test for estimating the selective attraction of students to an experimental program compared with a traditional program. It could also be used as a post-test to see whether any change in preferences is associated with new experiences. And it could be used in determining the interrelationships among experience, preference, and performance in a broader inquiry regarding the effectiveness of instruction.

EDUCATIONAL EXPERIENCES & PREFERENCES

During the past year in school (high school or college) about how often did you have each of the experiences listed below, and how well did you like (or would you like) that type of course work or activity? Please check (X) in the appropriate columns.

	How often have you had this experience?			How well do you like (or would you like) this type or course work or activity?		
	Frequently	Occasionally	Seldom or never	Like	Indifferent	Dislike
1. Having very clear and specific assignments.	___	___	___	___	___	___
2. Giving an oral report to a class.	___	___	___	___	___	___
3. Having frequent tests so as to know exactly how well I was achieving.	___	___	___	___	___	___
4. Taking an independent study course where I had to plan my own work.	___	___	___	___	___	___
5. Being told exactly when assignments or projects must be completed.	___	___	___	___	___	___
6. Being called on in class to express my opinion about a topic.	___	___	___	___	___	___
7. Following a definite schedule of time for study.	___	___	___	___	___	___
8. Working on a group project with other members of the class.	___	___	___	___	___	___
9. Taking exams in which the answers can be clearly graded as right or wrong.	___	___	___	___	___	___
10. Having to present arguments on both sides of an issue.	___	___	___	___	___	___

EDUCATIONAL EXPERIENCES & PREFERENCES (continued)

	How often have you had this experience?			How well do you like (or would you like) this type or course work or activity?		
	Frequently	Occasionally	Seldom or never	Like	Indifferent	Dislike
11. Memorizing specific facts and terms for an exam.	—	—	—	—	—	—
12. Planning and carrying out a research study in which I had to collect and interpret data.	—	—	—	—	—	—
13. Having an instructor who clearly indicates in his lectures what the main points are so that it is easy to take notes.	—	—	—	—	—	—
14. Participating in a class discussion in which various students express their opinions.	—	—	—	—	—	—
15. Writing a report or term paper on a topic assigned by the instructor.	—	—	—	—	—	—
16. Writing a report or term paper on a topic of my own choosing.	—	—	—	—	—	—

Report of Course Activities and Attitudes

One of the common objections to many student rating scales of courses and instructors is that the format and the questions appear to put the student in the role of judge, a role that assumes an appropriate and discerning basis for making the judgments. It is possible to evaluate courses from a different perspective -- one that regards students as reporters about their activities, interests, and feelings rather than as judges about course content, methods, and values.

Presumably, a course and the teacher of it hope to engage a student's interest, activity, and intelligence. To what degree and with how many students have these engagements occurred? Intellectual engagement can range from simple to complex -- from merely memorizing facts and terms one is told to understand to higher level skills involving application, analysis, and synthesis. Interest and attitudinal involvement can range from disinterest and rejection, to receptivity, to desiring, and to enjoyment and satisfaction. The level of activity and enthusiasm can range from passive and private, to open participation, and to public advocacy.

Parallel sets of items, reflecting a range from minimal to maximal levels of involvement, have been developed for each of these three types of responses -- intellectual (items 1 - 9), affective (items 10 - 18), and behavioral (items 19 - 25). Each item set is intended to form a scale which can be scored to show the degree of student involvement that has presumably been stimulated by the course and its instructor. Moreover, since the items are quite specific, the answer can be correspondingly explicit and accurate; and obviously the student himself is the only qualified reporter about his own behavior.

The conceptual base and example for these scales comes from the Taxonomies of Educational Objectives, by Benjamin Bloom, David Krathwohl, and others. Just as cognitive objectives range from simple to complex, so also the level and quality of students' learning activities range from simple memory of details to more integrative and analytical learning. This inherent parallelism formed the psychological rationale in the taxonomy of cognitive objectives; and a corresponding type of parallelism is implicit in the taxonomy of affective objectives. The items in the present questionnaire described as behavioral (items 19 - 25) could be regarded as belonging equally well to the so-called affective scale (items 10 - 18). However, it may be preferable and perhaps more diagnostic to conceptualize three dimensions of the quality of learning experience: simple to complex; disinterest to interest; and passive to active.

While one could use these scales instead of the more common rating scales of courses and instructors, it would be better and more informative to use them as a supplement to other measures because they appear to provide a different perspective rather than simply being a substitute technique.

It was the successful try-out of this scale, and the positive response of the faculty members who used it, that led to the construction of the quality of effort scales in Pace's CSEQ. If the concept works with respect to course activities, why couldn't it be developed with respect to other aspects of campus experience?

REPORT OF COURSE ACTIVITIES AND ATTITUDES

During this course about how often did you do each of the following things? (Check the appropriate space before each of the activities listed below.)

Very often	Often	Occasionally	Seldom or never	
___	___	___	___	1. Took detailed notes in class or on reading assignments.
___	___	___	___	2. Memorized facts, vocabulary, and terminology.
___	___	___	___	3. Underlined major points in the readings.
___	___	___	___	4. Made outlines from class notes or readings.
___	___	___	___	5. Attempted to explain the material to another student or friend.
___	___	___	___	6. Thought about applications of the material to other situations.
___	___	___	___	7. Tried to relate the material to ideas and experiences of my own.
___	___	___	___	8. Looked for some basic structure or organization in the material.
___	___	___	___	9. Tried to see how different facts and ideas fit together.
___	___	___	___	10. Postponed doing work related to the course.
___	___	___	___	11. Skipped class.
___	___	___	___	12. Listened attentively in class meetings.
___	___	___	___	13. Participated in class discussions.

REPORT OF COURSE ACTIVITIES AND ATTITUDES (continued)

Very often	Often	Occasionally	Seldom or never	
___	___	___	___	14. Voluntarily did work that was not required.
___	___	___	___	15. Enjoyed working in this course.
___	___	___	___	16. Thought I would like more courses in this field.
___	___	___	___	17. Thought I would like courses in fields related to this.
___	___	___	___	18. Asked the instructor for additional materials to study and think about.
___	___	___	___	19. Talked with other students in the course about the topics being studied.
___	___	___	___	20. Talked with the instructor after class.
___	___	___	___	21. Made appointments with the instructor to talk about the course.
___	___	___	___	22. Had meetings with other students who were particularly interested in the course.
___	___	___	___	23. Told other students (not in the class) about the interesting materials or ideas in the course.
___	___	___	___	24. Told friends outside the college about the interesting materials or ideas in the course.
___	___	___	___	25. Recommended the course to other students.

Quality of Teaching & Faculty-Student Relations

When thinking about the attributes of a good college professor, the following might come to mind:

The professor is
a dedicated scholar,
a thorough teacher,
and sets high standards of achievement.

In his courses he
keeps his materials up-to-date,
clearly explains the goals and purposes,
and stimulates good discussions.

In his relations with students, he is
helpful,
friendly,
and interested in them as individuals.

It is these attributes that are measured in this brief scale on this topic. The items are drawn from College and University Environment Scales (Educational Testing Service, 1963, 1969) and are brought together here as a separate test. On a campus in which good teaching and supportive faculty-student relationships are characteristic, most students would agree that many of the above attributes are generally true of their professors and courses. The "desirable" response to each item is indicated by X .

THE PROFESSORS

Directions: As you read each of the statements below, think of yourself as a reporter. What is generally characteristic about the professors and courses at your college? Check the space under TRUE (T) if the statement describes a condition, event, or activity that is generally characteristic of your college; or under FALSE (F) if it is not generally characteristic of the college. Please answer every statement.

Generally

T	F	
X		1. Most of the professors are dedicated scholars in their field.
X		2. Courses, examinations and readings are frequently revised.
	X	3. Personality, pull, and bluff get students through many courses.
X		4. The professors go out of their way to help you.
X		5. Most of the professors are very thorough teachers and really probe into the fundamentals of their subjects.
	X	6. Faculty members rarely or never call students by their first names.
X		7. Instructors clearly explain the goals and purposes of their courses.
	X	8. Most of the faculty are not interested in students' personal problems.
	X	9. Standards set by the professors are not particularly hard to achieve.
	X	10. Students almost always wait to be called on before speaking in class.
X		11. Class discussions are typically vigorous and intense.

Supportive Relationships

The college environment ratings in the CSEQ include three that ask students to characterize the interpersonal relationships among students at a college, between students and faculty members, and with adminstrative personnel. These measures are reproduced below:

THE COLLEGE ENVIRONMENT

The next three ratings refer to relationships among people at the college. Again, thinking of your own experience, how would you rate these relationships on the seven-point scales?

Relationship with other students, student groups, and activities

7 6 5 4 3 2 1

Friendly, Supportive, Sense of belonging — Competitive, Uninvolved Sense of alienation

Relationships with faculty members

7 6 5 4 3 2 1

Approachable, Helpful, Understanding, Encouraging — Remote, Discouraging, Unsympathetic

Relationships with administrative personnel and offices

7 6 5 4 3 2 1

Helpful, Considerate, Flexible — Rigid, Impersonal, Bound by regulations

General Satisfaction with College

If people don't like their present circumstances, would rather be somewhere else, and feel that what they are doing is unimportant, it would be quite safe to conclude that they are probably wasting their time and not taking advantage of opportunities available to them. Enthusiasm, satisfaction, and a sense of worthwhileness are personal feelings that contribute to productivity and accomplishment. Most students in most colleges like being there and believe that what they are doing is important and beneficial. The results from various surveys of college students support this generally favorable judgment. Nevertheless, the proportion of dissatisfied students is greater on some campuses than on others. The brief "satisfaction index" provides a reliable estimate of this aspect of the educational context. This index was used in Pace's 1969 survey of upperclassmen. The first two items are also included in the CSEQ.

GENERAL SATISFACTION
WITH COLLEGE

1. How well do you like college? (Check One)

___1. I don't like it.
___2. I am more or less neutral about it.
___3. I like it.
___4. I am enthusiastic about it.

2. If you could start over again, would you go to the same college you are now attending? (Check One)

___1. No, definitely
___2. Probably no
___3. Probably yes
___4. Yes, definitely

3. Regardless of any vocational benefit college may have for you, do you think that being in college at this time in your life is a very important and beneficial experience? (Check One)

___1. Definitely no
___2. Generally no
___3. Generally yes
___4. Definitely yes

The various measures described in this chapter can be classified along two dimensions. Some are measures of process; and some are measures of the context in which the processes occur. Second, some are measures oriented to the individual instructor and course; and some are oriented to education or instruction in general. For example, context measures include The College Environment, Campus Morale, and the ratings of Environmental Emphases. Process measures are illustrated by Styles of Learning, Educational Experiences and Preferences, and the Report of Course Activities and Attitudes, the Professors, Supportive Relationships, and Satisfaction. The Report of Course Activities and Educational Experiences and Preferences are directly applicable to and useable by an individual instructor. The other measures refer mainly to education and instruction in general.

Overall, the measures illustrated here are relevant to several widely acknowledged good practices in education: For example, the importance of active learning, of adaptations to individual differences, of good faculty-student contacts, and of holding high expectations for student performance.

BEYOND THE COLLEGE YEARS: ENRICHING THE CONTENT OF ALUMNI STUDIES

The emphasis in this report on expanding the range of measures of content and achievement, on better measures of the context in which learning and development occurs, and on the processes of learning and instruction all reflect an underlying concern with the problems of estimating the outcomes of education and instruction. The focus has been on measuring outcomes during the college years. In this chapter we look beyond the college years for additional ways of judging outcomes.

Most alumni surveys have focused on recent graduates. The content has emphasized occupational and financial status, job satisfaction, the relation of jobs to major fields of study in college, and subsequent success in and preparation for graduate study or other further education. ACT has an alumni survey questionnaire that deals with these topics. But these topics - jobs, money, and graduate work - are surely not reflective of some of the main purposes of higher education. Higher education, more fundamentally, is concerned with "critical thinking, the clarification of one's philosophy, ethics, and morality, with responsible citizenship, esthetic sensitivity, tolerance, appreciation of other cultures, self-directed learning, understanding science and technology, vocational training, and breadth of knowledge" (Pace, Measuring Outcomes of College, 1979, p. 110). In this book Pace goes on to suggest content for alumni studies that has not usually been included: evidence of knowledge possessed, personal achievement, general life satisfaction, intellectual interests and habits, standards and involvement in civic and cultural affairs, broad perspectives about

critical issues, problems, and choices, reflections on their own education, and views about the importance of higher education as a social institution. Questions at this level of significance are appropriate for alumni 10 to 20 years after graduation.

The farther removed one is from the college experience, the more difficult it is to "prove" that one's current status was caused by the influence of college. But this presumed difficulty is partly owing to the fact some researchers will not believe anything unless the research is done their way. The data have to be longitudinal; there must be a control group; one must discount the results in relation to students' basic abilities, family backgrounds, and prior achievements. In short, nothing can be accepted as true unless it has been demonstrated by a particular methodology. This, of course, is nonsense; and it results in judgments about education that are fundamentally false. The fact is, from all comprehensive alumni surveys, that the pattern of activities, interests, attitudes, etc. of adults 20 years after graduation is remarkably similar to the patterns of interest, curricular emphasis, and knowledge that characterized their college experience. Put somewhat differently one can say that the areas of knowledge, interest, and values that were emphasized in college are still evident in adult behavior 20 years later. This is not coincidence; it reflects a continuity in life history and is also consistent with the college experience. Its cause cannot be attributed to SAT scores, or high school grades, or to becoming 20 years older. "Proof" in the experimental definition is not applicable. One does not need to undertake alumni studies for the purpose of trying to prove the benefit of higher education, for many of the benefits are self-evident and universally recognized, especially those related to occupation.

This chapter in the present report is not a list of all the things one might include in an alumni questionnaire. Rather, its main content and purpose is to suggest some new categories of questions and modified ways of asking questions that have been asked in prior studies. Its purpose is to add to the ideas one might consider in developing an alumni questionnaire intended for alumni 10 to 20 years after graduation. Some of these ideas were originally developed by the writer during a term as a Visiting Scholar at Virginia Military Institute in 1980. Further developments of the ideas were presented to the Association of America Colleges in 1984, and to Georgetown University in 1986 for their consideration and possible use.

Abilities & Skills - College Emphasis and Personal Gain

The abilities and skills described in the following set of questions are ones commonly included in lists of educational objectives and often found in survey questionnaires. One could add or subtract a few in case that seemed desirable. The abilities fall into five categories, with two or more specific examples in each. Some of these skills and abilities may have little connection with the formal curriculum or with specific subject-matter, but are nevertheless abilities valued by higher education and by society in general - items 12, 13, 14, 15, for example. Previous surveys of students as well as alumni show that there are differences in the responses to these items related to the type of college and the major field. Also, I think it is true that certain institutions would give much more attention or emphasis than others would to some of these abilities.

The double set of ratings - college emphasis and personal gain - would enable one to examine attainments in relation to objectives. This would be an improvement over most past questionnaires that typically ask only about gains or benefits.

This set of ratings could also be given to seniors on the verge of graduation. Comparisons between their responses and what the graduates recall about them 10 or 20 years later might be instructive.

COLLEGE EMPHASIS AND PERSONAL GAIN

Listed below are various types of abilities or skills. Some of them, although not necessarily all, are often described as among the goals or purposes of higher education - goals such as critical thinking, effective communication, etc. As you now look back on your own undergraduate college experience, about how much emphasis (opportunity and encouragement) was there at your college on developing these abilities? And, about how much do think you personally improved or gained in these various abilities? Indicate your opinions by circling the appropriate number defined as follows:

College emphasis
- 5 = very much emphasis
- 4 = quite a bit of emphasis
- 3 = some/moderate emphasis
- 2 = little emphasis
- 1 = no emphasis
- 0 = no opinion, don't know

Personal improvement or gain
- 5 = very much gain
- 4 = quite a bit of gain
- 3 = some/moderate gain
- 2 = little gain
- 1 = no gain
- 0 = no opinion, don't know

Abilities and Skills	College Emphasis	Personal Gain
Ability to:		
1. Put ideas together, see relationships, similarities & differences between ideas	5 4 3 2 1 0	5 4 3 2 1 0
2. Think analytically & logically	5 4 3 2 1 0	5 4 3 2 1 0
3. Apply knowledge to new problems	5 4 3 2 1 0	5 4 3 2 1 0
4. Find information you need	5 4 3 2 1 0	5 4 3 2 1 0
Ability to:		
5. Write well	5 4 3 2 1 0	5 4 3 2 1 0
6. Speak well	5 4 3 2 1 0	5 4 3 2 1 0
7. Use quantitative tools (statistics, etc.)	5 4 3 2 1 0	5 4 3 2 1 0
8. Communicate through artistic and creative expressions	5 4 3 2 1 0	5 4 3 2 1 0
Ability to:		
9. Recognize and cope with moral and ethical issues	5 4 3 2 1 0	5 4 3 2 1 0
10. Put current problems in historical, cultural, philosophical perspective	5 4 3 2 1 0	5 4 3 2 1 0
11. Evaluate and choose between alternative courses of action	5 4 3 2 1 0	5 4 3 2 1 0

COLLEGE EMPHASIS AND PERSONAL GAIN (continued)

Abilities and Skills	College Empahsis	Personal Gain
Ability to:		
12. Function as a team member	5 4 3 2 1 0	5 4 3 2 1 0
13. Organize & supervise tasks and groups of people	5 4 3 2 1 0	5 4 3 2 1 0
14. Sense the feelings & perception of other people	5 4 3 2 1 0	5 4 3 2 1 0
15. Relate well to people of different races, nations, & religions	5 4 3 2 1 0	5 4 3 2 1 0
Ability to:		
16. Understand yourself - your abilities & limitations, interests & personality	5 4 3 2 1 0	5 4 3 2 1 0
17. Acquire new skills and knowledge on your own	5 4 3 2 1 0	5 4 3 2 1 0

Areas of Knowledge - Influences and Importance

This next set of items assumes that one of the intentions of higher education is (or ought to be) to make people knowledgeable about what is going on in the world now - i.e., to develop students' awareness of new developments, new thinking, etc., in different categories of knowledge such as science and technology, the arts and humanities, and the social sciences.

Answers to the first set of ratings (influences of college) will probably reflect primarily whatever the student's major field was. However, "current events" is not a course in the college curriculum; and it is quite possible that at some colleges little influence is exerted on students to keep up on such matters, and perhaps little stimulus to develop interest. Whatever emphasis colleges and universities choose to give (and I think must give) to knowledge about what has been, or more broadly the cultural heritage, there must also be (in my opinion) a parallel and complementary concern with what's happening in the world we now live in. I suspect some institutions exemplify this concern much better and more effectively than other. Public support for higher education is probably related strongly to public belief in its importance to life and society today.

From the second set of ratings (importance of knowledge for work and for personal satisfaction), one can explore many interesting relationships; for example: 1) whether the type of knowledge important for work is the same as the type of knowledge acquired in

college; 2) if not, then what are the main lines of difference?; 3) whether knowledge and interests developed in college are also important for personal satisfaction later, regardless of their utility in employment; 4) who is more interested in current events and social problems - those whose education and work is mainly science oriented, or those who are mainly arts and humanities oriented? These are just some of the connections that can be traced.

One obvious intent here is simply to see what areas of knowledge, if any, give people the greatest personal satisfaction. There will be, I hope, some evidence that college graduates are concerned about what's going on in the world, and that they find it personally important as well as satisfying to be aware of new developments and new thinking, whatever their line of employment may be, or whatever their major field of study in college may have been.

AREAS OF KNOWLEDGE

At the left hand side of this page there is a list of six different areas or types of knowledge. In each of these areas of knowledge indicate first how much influence your undergraduate college experience had in your acquiring such knowledge and interest. Then, on the right hand side of the page, indicate how important this type of knowledge is for the kind of work you now do, and for your personal interest and satisfaction. Make your response by circling the number that expresses your rating according to the following definitions:

Influence of college on acquisition/interest
- 5 = very much influence
- 4 = quite a bit of influence
- 3 = some influence
- 2 = little influence
- 1 = no influence

Importance of knowledge for work/personal satisfaction
- 5 = absolutely essential
- 4 = very important
- 3 = generally important
- 2 = marginally important
- 1 = not important

AREAS OF KNOWLEDGE	Influence of your college experience in acquiring knowledge and developing interest in this area	Importance of this type of knowledge: For the kind of work you do now	For your personal interests and satisfaction
1. New developments in science - new concepts, theories	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
2. New developments & inventions in technology - electronics, energy, transportation, medical technology, etc.	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
3. Knowledge of what contemporary dramatists, poets, & artists are producing	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
4. Major current events in the news at home and around the world	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
5. Different political positions related to social problems such as the economy, the law, welfare, defense, etc.	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1
6. Knowledge of what leading thinkers, historians, etc. are writing about people, values, cultures, and ways of life	5 4 3 2 1	5 4 3 2 1	5 4 3 2 1

Range of Knowledge

Varieties of knowledge is something that has not been tapped in previous studies, at least so far as I am aware. It would be nice, I suppose, to transform all this into a genuine multiple-choice achievement test. But then I'm not sure people would answer it. So, I've settled on the notion of asking them whether they think they could define/describe/explain the concepts/terms/instruments. One might wonder about the credibility of their answers; but past research suggests that one need not worry. The types of knowledge are obviously related to broad and specific subject-matter studied or not studied in college. What they say they can do will be closely related to what we know they have studied. The interesting analysis to be made is an exploration of breadth (who has it?).

Also, of course, one should take a careful look at the content of these four sets and add or subtract as desired. One should decide what ideas or concepts are especially pertinent to a college's objectives, and perhaps modify the lists accordingly. What is illustrated here is a type of item that may be very useful. It is an alumni level counterpart to one of the earlier suggestions for expanding the range of outcome measures for undergraduates.

RANGE OF KNOWLEDGE

In every field of knowledge there are, from time to time, new explanations, concepts, discoveries that change the way we view the universe, the earth, our institutions, and ourselves. Listed below are some words denoting such concepts and phenomena in the sciences and the social sciences. If someone said to you, "What is this?" What could you say? For each item indicate your response by using the following definitions.

I could define/describe it clearly, specifically, and correctly.
I could define/describe it in general terms, generally correct.
I could give a vague explanation, but not very adequate.
I really couldn't answer the question.

___	___	___	___	Gravity
___	___	___	___	Relativity
___	___	___	___	Radiation
___	___	___	___	Energy
___	___	___	___	Photosynthesis
___	___	___	___	Evolution
___	___	___	___	DNA
___	___	___	___	Tectonic plates
___	___	___	___	Marxism
___	___	___	___	Psychoanlysis
___	___	___	___	Conditioning
___	___	___	___	Corporation
___	___	___	___	Bureaucracy
___	___	___	___	The market
___	___	___	___	Gross National Product
___	___	___	___	Cultural relativity

In literature and the arts there are words that indicate different forms or styles of expression. Listed below are some of those words. If someone said to you, "What is this?" What could you say? For each item indicate your response by using the following definitions:

I could define it clearly, with lots of illustrations.
I could define it in general terms, with some examples.
I could indicate the general idea, but couldn't illustrate it exactly.
I really couldn't answer the question.

___	___	___	___	Satire
___	___	___	___	Irony
___	___	___	___	Epic
___	___	___	___	Myth
___	___	___	___	Metaphor
___	___	___	___	Analogy
___	___	___	___	Abstract
___	___	___	___	Representative

RANGE OF KNOWLEDGE (continued)

Many of the things we take for granted in our technically sophisticated world, because they are so familiar, are things many of us don't really understand. How do they work? What makes them do what they do? How, for example, does a picture get onto your TV set? Listed below are some scientific/technical instruments that in various ways affect our lives. If someone said to you, "How does this work?" What could you say? For each item indicate your response by using the following definitions:

I could explain it accurately - both theory and application.
I could give an explanation in general terms.
I could indicate some of what is involved but not technically.
I really couldn't answer the question.

___	___	___	___	Electric light
___	___	___	___	Automobile engine
___	___	___	___	Telephone
___	___	___	___	Phonograph
___	___	___	___	Radio
___	___	___	___	TV picture
___	___	___	___	X-ray
___	___	___	___	Electronic computer

Civic and Cultural Affairs

From the Alumni Survey Questionnaire, 1969, I've selected a few items from each of the activity scales. In each case the items represent different levels of civic and cultural involvement. If these or other items from the 1969 survey were used, some interesting comparisons could be made. I've also suggested a few questions about reading books and magazines.

The intent of these items is to assess the level and range of involvement in activities that have some relevance to the objectives of higher education.

CIVIC AND CULTURAL ACTIVITIES

READING

Not counting what you read for your work, about how many books of fiction did you read during the past year?

____none
____one or two
____three or four
____between five and nine
____ten or more

Not counting what you read for your work, about how many books of non-fiction did you read during the past year?

____none
____one or two
____three or four
____between five and nine
____ten or more

Not counting professional or technical magazines specifically related to your work, about how many magazines do you subscribe to and/or read regularly?

____none
____one or two
____three or four
____five or more

In the following categories of activities, check each of the activities you have engaged in during the past year.

COMMUNITY AFFAIRS

During the past year:

____I followed local events regularly in my newspaper.
____I gave money to the community fund or chest or other local charity.
____I belonged to a community organization interested in civic affairs - such as PTA, Chamber of Commerce, League of Women Voters, business or professional association, etc.

NATIONAL and STATE POLITICS

During the past year:

____I listened to speeches, news specials, discussion programs, etc. about political issues on TV or radio weekly or monthly.
____I followed state and national political events regularly in my newspaper.
____I voted in the last state election.
____I contributed money to some political club or group.
____I signed a petition, wrote as letter, card, or telegram concerned with some political issue.

ART
During the past year:

____I talked about art with my friends.
____I attended an exhibition of contemporary painting or sculpture.
____I bought a painting or piece of sculpture.

LITERATURE
During the past year:

____I talked about new books with my friends.
____I bought books for my personal library.
____I read poetry.

EDUCATION
During the past year:

____I read about education in the newspaper.
____I voted (or would vote) in favor of a bond issue or other proposition to provide more money for the public schools.
____I enrolled in a course offered by a college or university.

MUSIC
During the past year:

____I talked about music with my friends.
____I attended one or more symphony, opera, or chamber music concerts.
____I attended one or more concerts of contemporary folk music, rock, jazz, etc.

DRAMA
During the past year:

____I talked about movies, plays, TV dramas, etc. with my friends.
____I attended one or more plays -- either professional or amateur.
____I saw several movies that could be described as experimental, avant garde, etc.

RELIGION
During the past year:

____I belonged to a church.
____I contributed a regular sum of money to the church.
____I discussed ideas, practices, or problems of religion with my friends.

INTERCULTURAL
During the past year:

____I talked with my friends about people and cultural events in other countries.
____I saw one or more foreign movies.
____I read one or more books by authors from another country.

SCIENCE
During the past year:

____I talked about science with my friends.
____I read articles about new developments in scientific research in the newswpapers or magazines.
____I attended a scientific exhibit or museum.

INTERNATIONAL
During the past year:

____I discussed international relations, foreign policy, the U.N., etc. with my friends.
____I read newspapers or magazine articles dealing with international relations.
____I wrote to a news publication or government official in behalf of some legislation or U.S. policy regarding international relations.

These suggestions for the content of alumni studies illustrate the fact that at this level of testing one is no longer assessing student learning and development in college. One is, however, exploring current interest, activities, and knowledge that are adult counterparts to certain broad aspects of the college experiences; and to that extent one is identifying residual and enduring impressions and influence.

SUMMARY AND SUGGESTIONS

The emphasis on assessment, accreditation, and accountability makes the measurement of outcomes and judgments about quality in higher education topics of widespread discussion and concern. This concern is evident at various levels -- federal, state, regional, institutional, and individual.

Some people believe there should be a national index of educational quality, or, more realistically, several indicators which would be a profile of quality. Perhaps this would be analogous to economic indicators, such as GNP, Dow-Jones, Consumer Price Index, etc. But there are many relevant indicators of the economic quality of the nation -- unemployment, percent of families living in poverty, national debt, trade balances -- and they do not add up to a consistent conclusion. Dow-Jones goes up, but so does the national debt. Despite the ingenuity of economists in devising indicators there remains considerable dispute about what some of the indicators really mean. There would, I suspect, be even more dispute about the interpretation of educational indicators; and still more dispute about their appropriateness.

At the state level, the concern for accountability is often expressed by setting minimum standards of performance, especially in basic skills such as reading, writing, math, etc. Some states have also provided financial incentives to encourage local evaluations.

Often one finds the suggestion that "gains" in students knowledge, understanding, skills, etc. should be emphasized in judging the quality of instruction and the college experience.

The term "value added" is often used to express this, and some writers have proposed that the quality of an institution's education for undergraduates should be judged by how much students gain between entrance and exit. The only thing new about "value added" is the term itself. Education has always been concerned with student learning; and the proof of learning has always been evidence of change, or a demonstrated capacity to perform at some desired level. The problem of "measuring" change, however, is no simple matter. This is not the place for a discussion of the technical issues in the measurement of change. Three problems can be cited briefly: 1) the error of measurement is magnified when one compares the differences between two scores each of which has its own error of measurement; 2) the potential for change is related to one's position in the distribution of scores on the initial test; 3) the same test items, encountered a second time, may not be measuring the same thing they initially measured. So, our existing testing technology is of doubtful adequacy for measuring change; and, the conclusions one draws from such technology are of dubious validity. Many changes are obvious and do not require formalized testing. And for many objectives, students themselves may be the only valid source for estimating "gains."

The regional accrediting associations recognize the importance of institutional differences, and require self-studies designed to clarify purposes, examine programs, and measure productivity. This individualized approach, together with general guidelines, allows the college to examine its own strengths and weaknesses. Today, what is popularly called assessment also typically recognizes the importance of local purposes and programs.

To some extent, assessment is an encouragement for more colleges to do more publicly and more systematically what some colleges have done periodically for many years -- through the college's institutional research office, the records of its students on such exams as GRE, various questionnaire surveys, locally made examinations, and other college records. At the beginning of this present report, I expressed the view that the assessment of institutional quality must consider all the aims and activities of the institution, and that no single indicator of quality was equally appropriate for all institutions. This is also true, I believe, in the assessment of educational and instructional quality. Consequently, my own efforts to facilitate the evaluation of educational and instructional activities have usually been toward expanding the range and variety of measures that might be used rather than to devise or recommend a single measure to apply to everyone.

An adequate assessment of educational and instructional quality requires a battery of measures, a variety of observations, and the recognition of multiple aims. The measures described in this report are a step in this direction. What needs to be given much greater attention is the role that students themselves can have in evaluation -- perhaps by keeping time logs, diaries, writing an autobiography, and other activities that directly express and document not only the process of learning but also the product. Self-evaluation, under guidance, would contribute to personal learning and development in the same way that institutional self-study contributes to institutional understanding and development.